

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
3 February 2005 (03.02.2005)

PCT

(10) International Publication Number
WO 2005/010676 A2

- (51) International Patent Classification⁷: **G06F**
- (21) International Application Number:
PCT/US2004/022517
- (22) International Filing Date: 16 July 2004 (16.07.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
10/621,821 16 July 2003 (16.07.2003) US
- (71) Applicant (for all designated States except US): **CY-TOKINETICS, INC.** [US/US]; 280 East Grand Avenue, South San Francisco, CA 94080 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **KUTSYI, Vadim** [US/US]; 553 Tyndall Street, Los Altos, CA 94022 (US). **VAISBERG, Eugeni, A.** [US/US]; 647 Pegasus Lane, Foster City, CA 94404 (US). **COLEMAN, Daniel, A.** [US/US]; 328 West 36th Avenue, San Mateo, CA 94403 (US).
- (74) Agent: **GARRETT, Arthur, S.**; Finnegan, Henderson, Farabow, Garrett & Dunner LLP, 1300 I Street, N.W., Washington, District of Columbia 20005-3315 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHODS AND APPARATUS FOR INVESTIGATING SIDE EFFECTS

(57) Abstract: Methods, apparatus, and computer programs for investigating and characterising side effects of a treatment having an intended or on-target effect on cells are described. The method can include identifying a group of on-target cellular features of the plurality of cells which are affected by the treatment and are related to the on-target effect. A group of off-target cellular features can also be identified which are different to the on-target cellular features and which are also affected by the treatment and which are related to the side effect. A measure of the side effect based on the off-target cellular features can be obtained. The treatment can then be characterised based on the measure of the side effect. A further method involves capturing an image of the population of treated cells and deriving cellular features from the image. An on-target effect signature, which is characteristic of the on-target effect is created from cellular features relating to cellular properties involved in the intended effect. A side effect signature, which is characteristic of a side effect to the on-target effect, is created using cellular features relating to cellular properties not involved in the intended effect. On target effect and/or side effect metrics are obtained from the signatures which can be used to characterise the treatment.



WO 2005/010676 A2